

S.E. FIRST SEMESTER

Course Code – 215301

Course Name: **Engineering Mathematics III**

Year **2009 - 2010**

Credit Points : 4	Teaching Hrs/Week	Tutorials / week
	3 Hrs/Week	1 Hr / Week

Objective	To impart Fundamental knowledge of Mathematics and its tools . To Develop the skills of Mathematics amongst the Engineering Students and ‘enhance ‘their “Thinking Power”
Prerequisites	Engineering Mathematics I & Engineering mathematics II

Unit	Topic Name	Details	Hrs
1	Functions of a Complex Variable	1. Limits and continuity of a function of a complex variable, Differentiation, Cauchy Riemann equations, Analytic function, complex exponentials, trigonometric, Hyperbolic functions, Laplace equations	5
		2. Bilinear transformations, Conformal mapping	3
		3. Contour integration, Cauchy’s Integral theorem(no proof), Taylor’s series, Laurent’s Series	4
2	Transforms	1. Fourier Transforms- Definition, Fourier Integral Theorem, Fourier sine and cosine transforms. Relation between Laplace transforms and Fourier transforms.	5
		2. Inverse transforms and simple applications of Fourier transforms for boundary value problems.	3
		3. Standard Z – transforms	2
3	Linear Differential Equations	1. Applications of differential equations	5
		2. Series Solutions of Differential Equations	3
4	Numerical Methods	1. Solutions to algebraic equations – False position method, Newton Raphson method	3
		2. Numerical solutions to Ordinary Differential equations- Euler’s method and Runge- Kutta method	4

5	Operations Research	1. . Introduction to Operations Research (OR) , History of OR. Formation of Linear Programming Problem [LPP]	3
		2. Solving LPP by Graphical method. Simple problems using Analytical method	3
6	Probability and Statistics	Statistical Methods , Mean, Median, Mode, Measures of Dispersion, Moments, Skewness, Probability and Distributions , Binomial Distribution, Poisson Distribution, Normal Distribution.	7

Text Books	<p>1] Advanced Engineering Mathematics [7th edition] – Herbert Kreyszig & Erwin Kreyszig - John Wiley & Sons (Asia) Publications</p> <p>2] Engineering Mathematics Vol-I,II,III – KandaSwami , P Thilagavathy, Gunavathy – S Chand & Com. Delhi</p> <p>3] Numerical Methods – KandaSwami , P Thilagavathy, Gunavathy – S Chand & Com. Delhi</p>
Reference Books	<p>1] A Text Book of Applied Mathematics Vol I , II – PN Wartikar & JN Wartikar Pune Vidyarthi Griha Prakashan Pune</p> <p>2] Higher Engineering Mathematics – BS Grewal – Khanna Publishers</p> <p>3] Advanced Engineering Mathematics – CR Wyile , - McGraw Hill Publications]</p> <p>4] Advanced Engineering Mathematics Vol III E Rukmangadachari – Pearson Education Publication</p>
Related Websites	<p>W 1. www.enm.bris.ac.uk</p> <p>2. libguides.library.dal.ca/content.php?pid=1078&sid=67322</p> <p>3. www.intute.ac.uk/sciences/mathematics</p>

Examination Scheme	Assignments, Seminars and	
	Internal Assessment	40 Marks
	Final Theory Paper	Written : 60 Marks